IN THE CLAIMS

Please amend the claims as follows:

1. (Currently amended): A method of manufacturing granular magnetic recording media, comprising sequential steps of:

(a) providing a non-magnetic substrate including a surface;

(b) forming a layer stack on said surface of said substrate, said layer stack including an outermost granular magnetic recording layer with an exposed nano-scale rough and porous surface, said outermost granular magnetic recording layer is formed by sputter deposition in an atmosphere with at least one reactive gas comprising oxygen, nitrogen, and/or carbon atoms;

(c) treating said exposed nano-rough and porous surface of said granular magnetic recording layer to provide at least one of:

(i) a reduction of said nano-scale roughness and porosity;

(ii) increased compositional homogeneity;

(iii) increased microstructural homogeneity;

(iv) preferential removal of at least one element; and

(v) increased grain boundary coverage by a subsequently deposited protective overcoat layer; and

(d) forming a protective overcoat layer on the treated surface of said granular magnetic recording layer,

wherein step (c) comprises sputter etching said surface.

2. (Original): The method according to claim 1, wherein:

step (b) comprises forming a layer stack including an outermost granular perpendicular magnetic recording layer.

3. (Original): The method according to claim 1, wherein:

step (b) comprises forming a layer stack including an outermost granular longitudinal magnetic recording layer.

4. (Cancelled)

5. (Cancelled)

6. (Currently amended): The method according to claim [[5]]1, wherein:

step (c) comprises sputter etching said surface with ions of an inert gas.

7. (Original): The method according to claim 6, wherein:

step (c) comprises sputter etching said surface with Ar ions.

8. (Original): The method according to claim 1, wherein:

step (d) comprises forming a carbon (C)-containing protective overcoat layer.

9. (Original): The method according to claim 8, wherein:

step (d) comprises forming a diamond-like carbon (DLC) protective overcoat layer.

10. (Original): The method according to claim 9, wherein:

step (d) comprises forming said DLC protective overcoat layer by ion beam deposition (IBD).

11. (Original): The method according to claim 1, wherein:

step (a) comprises providing a non-magnetic substrate comprised of a non-magnetic material selected from the group consisting of: Al, NiP-plated Al, Al-Mg alloys, other Al-based alloys, other non-magnetic metals, other non-magnetic alloys, glass, ceramics, polymers, glass-ceramics, and composites and/or laminates of the aforementioned materials.

12. (Original): The method according to claim 1, wherein:

step (b) comprises forming a layer stack including a granular Co-based alloy magnetic recording layer comprised of a CoPtX alloy, where X = at least one element or material selected from the group consisting of: Cr, Ta, B, Mo, V, Nb, W, Zr, Re, Ru, Cu, Ag, Hf, Ir, Y, O, Si, Ti, N, P, Ni, SiO_2, SiO, Si_3N_4, Al_2O_3, AlN, TiO, TiO_2, TiO_x, TiN, TiC, Ta_2O_5, NiO, and CoO, and wherein Co-containing magnetic grains are segregated by grain boundaries comprising at least one of oxides, nitrides, and carbides.

13. (Original) The method according to claim 1, further comprising a step of:

(e) forming a lubricant topcoat layer on said protective overcoat layer.

14. (Original): The method according to claim 13, wherein:

step (e) comprises forming a layer of a perfluoropolyether material.

Claims 15-25. (Canceled)

26. (Currently amended): A method of manufacturing granular magnetic recording media, comprising sequential steps of:

(a) providing a non-magnetic substrate including a surface;

(b) forming a layer stack on said surface of said substrate, said layer stack including an outermost granular magnetic recording layer with an exposed nano-scale rough and porous surface, said outermost granular magnetic recording layer is formed by sputter deposition in an atmosphere with at least one reactive gas comprising oxygen, nitrogen, and/or carbon atoms; and

(c) sputter etching said nano-rough and porous surface of said granular magnetic recording layer.

27. (Cancelled)

28. (Previously presented): The method according to claim [[27]]26, wherein:

step (c) comprises sputter etching said surface with ions of an inert gas.

29. (Previously presented): The method according to claim 26, wherein:

step (b) comprises forming a layer stack including an outermost granular perpendicular magnetic recording layer.

30. (Previously presented): The method according to claim 26, wherein:

step (b) comprises forming a layer stack including an outermost granular longitudinal magnetic recording layer.

31. (Previously presented): The method according to claim 26, wherein:

said granular magnetic recording layer comprises a CoPtX alloy, where X is at least one element or material selected from the group consisting of: Cr, Ta, B, Mo, V, Nb, W, Zr, Re, Ru, Cu, Ag, Hf, Ir, Y, O, Si, Ti, N, P, Ni, SiO_2, SiO, Si_3N_4, Al_2O_3, AlN, TiO, TiO_2, TiO_x, TiN, TiC, Ta_2O_5, NiO, and CoO, and wherein Co-containing magnetic grains are segregated by grain boundaries comprising at least one of oxides, nitrides, and carbides.

32. (Currently amended): A method of manufacturing granular magnetic recording media, comprising sequential steps of:

(a) providing a non-magnetic substrate including a surface;

(b) forming a layer stack on said surface of said substrate, said layer stack including an outermost granular magnetic recording layer with an exposed nano-scale rough and porous surface, said outermost granular magnetic recording layer is formed by sputter deposition in an atmosphere with at least one reactive gas comprising oxygen, nitrogen, and/or carbon atoms;

(c) sputter etching said surface of said granular magnetic recording layer with ions of an inert gas; and

(d) forming a protective overcoat layer on the treated surface of said granular magnetic recording layer.

wherein the nano-scale roughness of the outermost granular magnetic recording layer is less than 2.0 Å.

33. (Previously presented): The method according to claim 32, wherein:

step (d) comprises forming a diamond-like carbon (DLC) protective overcoat layer.

34. (Previously presented): The method according to claim 32, wherein:

step (d) comprises forming said DLC protective overcoat layer by ion beam deposition (IBD).

35. (Previously presented): The method according to claim 32, wherein:

step (b) comprises forming a layer stack including an outermost granular perpendicular magnetic recording layer.

36. (Previously presented): The method according to claim 32, wherein:

step (b) comprises forming a layer stack including an outermost granular longitudinal magnetic recording layer.

37. (Previously presented) The method according to claim 1, wherein the nano-scale roughness is less than 2.0 Å.

38. (Previously presented): The method according to claim 37, wherein the nano-scale roughness is less than 1.5 Å.

39. (Previously presented): The method according to claim 26, wherein the nano-scale roughness is less than 2.0 Å.

40. (Previously presented): The method according to claim 39, wherein the nano-scale roughness is less than 1.5 Å.

41. (Cancelled)

42. (Currently amended): The method according to claim [[41]] 32, wherein the nano-scale roughness is less than 1.5 Å.